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Historical Sketch of the Minnesota Academy of Science

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HISTORICAL SKETCH OF THE MINNESOTA ACADEMY OF SCIENCE.

Compiled from its records by Secretary Harlow Gale, for the Thirty-third Anniversary Meeting (278th) January 2, 1906.

The father of the 33-year-old Minnesota Academy of Science is Dr. A. E. Johnson, who conceived the idea of forming a group of Nature-lovers for "the cultivation of Natural Science in general, and especialy the sciences of Geology and Archæology." With two of his professional friends, Drs. Charles Simpson and C. E. Rogers, he issued a public invitation to any persons interested in such a purpose to meet in his office in the Wensinger Block, corner of Central Avenue and Main Street, in St. Anthony, on January 4th, 1873. This invitation brought out three other lovers of nature, Dr. A. F. Elliot, E. W. B. Harvey, Superintendent of the St. Anthony Schools, and Professor N. H. Winchell, who had just come to the University of Minnesota as State Geologist. Two days later an organization was effected, with the presence of two additional physicians, Drs. A. E. Ames and W. H. Leonard, under the adopted name of the "Minnesota Academy of Natural Sciences," whose first officers were as follows:

President—A. E. Johnson, East Minneapolis.
Vice-President—S. C. Gale, West Minneapolis.
Secretary—Chas. Simpson, East Minneapolis.
Corresponding Secretary—A. E. Ames, West Minneapolis.
Treasurer—E. W. B. Harvey, East Minneapolis.

Professor Winchell was the guiding spirit in embodying the organizatcn and drafting the constitution and by-laws; while the offer of Dr. Johnson's office as a place of meeting and for the preservation of specimens was accepted. It is significant of the spirit of the Academy that of the dozen original charter members a majority were practical physicians, viz.: Drs. A. E. Johnson, Chas. Simpson, C. E. Rogers, A. E. Ames, W. H. Leonard, A. F. Elliot and Dr. M. D. Stoneman, a dentist; while only three were teachers, viz.: Professor N. H. Winchell, the State Geologist; Principal E. W. B. Harvey, of the St. Anthony schools, and A. W. Williamson, a teacher of mathematics(for many years now a teacher of English at Augustana College, Rock Island, Ill.) Among the first year's added members, who took an active interest in the thirteen meetings of the year, were R. J. Mendenhall and R. J. Baldwin, bankers and naturalists; William Cheney, our pioneer meteorologist; Dr. P. L. Hatch, our pioneer ornithologist; Dr. W. H. Leonard, Archæology and Botany; Dr. B. L. Taylor, George W. Tinsley, mechanic, and Professor S. F. Peckham, the chemist of the State University. Paris Gibson and O. V. Tousley were among the original trustees.

The first formal paper read to the Academy was Dr. Johnson's able presidential address, "Did Life Originate by Law?" at the February meeting, 1873, which was published before the end of the year as the first number of the first volume of bulletins of the Academy.

In this address of 30 pages the author found it "impossible, in one or a hundred discourses, to present all the evidence that impels us to the belief of the law hypothesis, to the belief that the methods of God are secondary in the control of the universe." The first scientific report was an oral one from Professor Winchell "of his observations of the Drift, presenting the various theories on the subject, together with his own views." Two months later "the Drift was again discussed at considerable length by Messrs. Winchell, J. B. Clough, Ames, Gale and Johnson;" when a query by Dr. Stoneman regarding the identity of matter and force elicited considerable discussion, engaged in to a greater or less extent by all present. The fact that "the question was left undecided, no one being able to see clarly the identity of the two agents or substances" evidently led Dr. Johnson to present a paper two meetings later on "Matter and Force." The last meeting of its first year shows a remarkably virorous Academy, judged from the following minutes. "Dr. Ames read a communication from Professor Leidy concerning a vertebra found by Dr. Ames in the Red River country, assigning it to the Bison antiquus. A report on the Mammalia of the state was read by Dr. Ames (printed in the second number of the Bulletin). A report of the Archæology of the state was read by Dr. Leonard. Mr. Cheney referred to some recent experiments on the effect of vapor of water in equalizing the temperature of a room, which was followed by discussion. A report on the Ornithology of the state was partly read by Dr. Hatch (the balance being read at he next meeting and all printed in the second bulletin.) A paper was read by Dr. Simpson on "Prerequisites to a Proper Study of Science," and was published later.

After an extra supplementary meeting, at which the remainder of Dr. Hatch's report was read and Dr. Johnson read a paper on the "Timbers of the State." the second year of the Academy was begun with a remarkable and valuable paped by Dr. Johnson, designed as his retiring address as President, but really proving to be a new inaugural on the "Geological and Archæological Evidences of the Antiquity of Man" and filling forty pages of the second bulletin. The rest of this bulletin is occupied by a most interesting paper by Professor Winchell on "Geological Notes from Early Explorers in the Minnesota Valley," and by an ingenious paper by Geo. W. Tinsley on "Astronomy—Scientific and Unscientific." The unpublished papers and discussions of this second year should also be recorded here as stimulating evidence of the intellectual activity of the original Academy members. Mr. Tinsley had a paper "On the Cooling of the Earth and Its Relation to the Drift," Dr. Johnson a paper on "Evolution," followed two months later by one from Dr. Ames, who founded his principal argument against the theory on the fact of the existence of the lower forms of life at the present day. The paper drew out a great deal of discussion and revealed the fact that each man held views peculiar to himself." This evolution was again followed by Rev. E. C. Mitchell, who "considered that the two important factors in the origin of species were natural birth and extraordinary generation." Dr. Johnson's indefatigable enthusiasm produced three more papers in the fall of this year: one on "Entomology," one "describing some explorations and discoveries at Palmer

Lake Mound," Brooklyn, Minn., and one "on the Anatomy, Physiology and Habits of the Star Fish." Resolutions were also offered by Dr. Johnson in October of this year (1874) in memory of the death of Dr. A. E. Ames, who had himself offered similar resolutions at the beginning of this year on the death of the distinguished honorary member of the Academy, Professor Louis Agassiz.

The meeting of the third year (1875) began with descriptions by Professor Winchell of the order of the rocks which underlie the surface in this vicinity and by Professor Peckham on the iron ore from Duluth, which was similar to a Rhode Island ore containing a large proportion of titanium. The only paper by Dr. Johnson this year was one in March "On the Stoat, with Special Reference to Its Change of Color." Rev. Mr. Mitchell read "An Essay on Hydrophobia, profusely elaborating the symptoms, real as well as imaginary." R. J. Mendenhall had a paper on "Some Insects Injurious to Vegetation in this Climate," which was published in this year's bulletin "with a view to its wide distribution in our state." The rest of this bulletin for 1875 is occupied with supplementary list of the birds of the state, by Dr. Hatch, with acknowledgements of aid to Mr. John Roberts and his son, T. S. Roberts, W. L. Tiffany and G. W. Tinsley; "Notes on a Remarkable Storm," by Geo. B .Wright, in which over thirty inches of water fell during thirty hours about July 18, 1867; the first installment of Meteorological Statistics by William Cheney, beginning with 1864; "Notes on the Deep Well Drilled at East Minneapolis in 1874-5," by Col. J. B. Clough, City Engineer; and the reports of the committee on Conchology by Dr. Elliot, and of the curator, Dr. Simpson. The fall meetings developed a new and fertile subject when Dr. Leonard "made an interesting report on the examinations of the mounds at Lake Minnetonka in August last, and of the bones found therein, which he placed in care of the curator of the museum." The next month he reported "the opening of a new mound at Crystal lake. A few human bones and the vertebrae of a snake were all that was discovered." A month later Mr. Tinsley "stated that he had discovered thirteen large mounds out at Bloomington, giving a description of them; while at the following meeting Dr. Hatch "gave an interesting account of the opening of a mound by Mr. Thurber at Lake Minnetonka. The mound was covered by stones, placed in the form of a roof, and immediately beneath was a layer of wood, under which was an adult skeleton. One foot below this were four others, making the four points of the compass; one appeared to be an adult male, another an adult female, lying with their bodies horizontal, head slightly raised and legs flexed. The other two were children, with legs flexed in a similar manner, but face down."

The end of this third year marked an important event in the history of the Academy and one which will call our attention to the two other functions of the Academy besides its meetings, i. e., its museum and library. A committee of Drs. Elliott, Hatch, and Simpson, appointed "to take into consideration the propriety of moving the museum of the Academy to a more central location" where it "would be visited by a larger number of people than at present and thereby awaken a greater interest in its prosperity, looked for rooms

centrally located about Center block, but they were mostly on the third floor and rents were too high to be easily met by the Academy. The room formerly occupied by the Y. M. C. A., No. 214 Nicollet avenue (over the Post Office) can be obtained for $120 a year. It is of fair size and well lighted; will accommodate the wants of the Academy for a few years very well." Colonel Clough offered to solicit money to finish up the museum cases for which Mr. Tinsley offered the hinges; all of which was done. Thus the meeting of November, 1875, was held in the new rooms.

The museum had begun with gifts of specimens at its organization from Drs. Johnson and Elliot, followed soon by gifts or exchanges from similar societies; so that the curator, Dr. Simpson, in his first report after one year's existence wrote: "Since the Academy took possession of its present rooms, cases have been constructed for the accommodation of our geological and mineralogical specimens, copied from similar cases in the museum of the University of Michigan, which are sufficient, not only for our present collection, but for all that we may reasonably expect to accumulate for some time to come. Ten cases of a different character, with glass covers, intended for the exhibiton of specimens of a more delicate nature, such as insects and shells, have also been procured and partly utilized." The collection then comprised several thousand secimens illustrative of the geology and paleontology of Minnesota, 350 specimens of minerals, a few zoology specimens, about 100 specimens of bones or implements in the archæology of the state, some 300 native Lepidoptera, a few native birds and several hundred land and fresh-water shells. What a stimulating evidence this collection is of the scientific spirit and enthusiasm of the genuine nature-loving founders of the Academy!

The library, with its present 12,000 numbers, began similarly from gifts and exchanges. The corresponding secretary, Dr. Ames, reported at the first May meeting "that he had entered into communication with most of the learned societies of the country;" while the first year's contributions to the library came not only from 164 similar academies of science in California, St. Louis, New York, Buffalo and Philadelphia, but even France, Spain and Scandinavia. The exchanges from our own bulletins now come from every continent of the world.

The fourth year of the Academy's life (1876) was memorable for the publication in that year's bulletin of Dr. A. E. Johnson's monumental paper on "The Mycological Flora of Minnesota," filling a hundred pages. In his genuine naturalist's devotion to this specialty Dr. Johnson had gathered and examined over 10,000 specimens in Hennepin, Ramsey, Wright and Anoka counties, resulting in 559 specimens new to the state, two of which were new to science. Besides this splendid product of the Academy's zeal this bulletin contained Mr. R. J. Baldwin's fine presidential address on "Light," Dr. Leonard's report on "Ferns," Dr. Hatch's supplemental report on "Ornithology," a paper on "Tornadoes and Cyclones" by Gen. T. L. Rosser, "Notes on a Hail Storm Occurring August 18, 1858," by Nathan Butler, and Dr. A. F. Elliot's curator report. Other papers read during the year were "A Case of Plants Adapting their Habits to

Circumstances," by Geo. B. Wright; "On the Detection and Extermination of Several Very Troublesome Insects Among Fruit Trees and Shrubery," by R. J. Mendenhall, Dr. Johnson read a paper giving an account of what was found in the Palmer Lake mounds, General Rosser described the phenomena of falling fish in Kentucky on March 8, 1876, Geo. W. Tinsley read a valuable paper on "The birth and Growth of Planets," Dr. Johnson "gave an interesting and detailed account of how he killed numerous plants with chloroform, which was new to him; but nevertheless convinced him that plants will be killed, as well as animals, from an over dose," and Professor Winchell read a paper as "Notes on the Paleontology of the Trenton Limestone in Minnesota."

These winter months of 1876 make an epoch in the Academy's history through the three public lectures on "Astronomy" by Richard A. Procter, which besides their value as a means of scientific culture netted the Academy treasury $356.60.

Though the scientific activity for 1877 waned somewhat, the following records of papers read show a good vitality: "The Muskrat as the Founder of the Baconian Philosophy," by Geo. B. Wright; "On the Purity of the Water of the Mississippi River," by Dr. Johnson; "On the Tube Artesian Wells of Minneapolis," written by C. E. Whelpley, and read by Dr. Elliot; "Report of the Analysis of Some Ashes Taken from a Furnace where Bran was used for Fuel," by Prof. S. F. Peckham; "The History of Milling," by Geo. H. Christian; verbal report of his investigations in Ichthyology by W. L. Tiffany; a description of the effects of the storm of the previous Friday night in Richfield township by Mr. John Roberts; remarks on the geology of Hennepin county by Prof. Winchell, and "an elaborate account of the ancient as well as modern trilobite by Mr. Tiffany.

The records of the two following year (1878 and 1879) show, amid the presentation of many specimens for the museum and exchanges for the library, the following scientific activity:—two supplementary reports by Dr. A. E. Johnson on the "'Fungi of the State,' of which he had collected 229 species new to our state and 22 new to science (both reports and catalogs being printed in the Bulletin for 1877-9); "An Assay of the Effects of Fungous Growths upon Vegetable and Animal Life," by Dr. Johnson; a paper on "Infusoria," by Dr. A. W. Abbott; a discussion on the recent explosion of the Washburn A mill, by R. J. Baldwin, A. C. Rand and W. L. Tiffany; "An Essay on the Black Bass," by W. L. Tiffany; "Progress in the Study of the Mounds of the State," by Nathan Butler; a paper on "Drilling Wells for Water Purposes," by C. E. Whelpley; a paper on "Ornithological Notes," by Thomas S. Roberts, Robert S. Williams and Clarence L. Herrick, and read by Mr. Tiffany; a paper on "Entomology," by R. J. Mendenhall, and one on "The Yeast Plant," by Dr. A. W. Abbott (both these papers appear only in abstract in the bulletin because all the manuscript and printed pages of the 1878 bulletin were destroyed in the Brackett Block fire); a lecture on "Ethnology," by Hon. C. S. Bryant of St. Paul; a lecture on the Mineralogy and General Geographical Features of the Lake Superior District," by Prof. S. F. Peckham; a lecture on "The Eagle

Fish Hawk," by W. L. Tiffany, the secretary; address on the "Uses of the Misroscope," by Wm. Kilgore, and a paper on "Darwinism," by Professor Winchell, who was president for this year (1879.) Although this paper on Darwinism, along with Dr. Johnson's inaugural address of this year was evidently lost in the historic Brackett Block fire. Professor Winchell's retiring address closes the first volume of over 400 pages of the Bulletin and is a most valuable document on the first seven years of the Academy's history on its purposes and benefits. It ought to be quoted in full in the present historical paper. Besides the men whose names which have appeared as partaking in the Academy's programs there should be mentioned the names of three honored clergymen who took much active interest in the Academy, Jas. McGolrick, Henry A. Stimson and E. S. Williams, the first of whom was the first life member of the Academy, R. J. Mendenhall being the second.

The year 1880 shows the following intellectual scientific activity:—an inaugural presidential address by Dr. P. L. Hatch, reviewing with his well-known literary originality the work of the Academy a letter from C. E. Whelpley, reporting the discovery of wood and bone at a depth of 300 feet during the boring of a well at Sheldon, Iowa, from which the specimens themselves were also sent; "an evening was devoted to microscopy, ten instruments being present, several of which were described in detail by their owners," and a box of microscopic slides, recently purchased from Mr. John Walker. were evidently used; Professors Peckham and Winchell described successively the various specimens in the fine collections of minerals presented by Mr. W. A. Morey for the use and benefit of the Academy;" a similar description, with the aid of Professor Hall, of a collection of minerals given by Mr. C. H. DuBois; "A Biographical Notice of a Few of the Fishes of the Falls of St. Anthony," by Mr. Tiffany; a paper on "How the United States Fish Commission Works," by Franklin Benner, who was connected with this work in Maine in 1878; an address by Dr. R. J. Taylor of Galesburg, Ill., on "The Rotary Motion of the Gyroscope," which address was candidly recorded with the characteristic honesty of the secretary, T. S. Roberts, as being of "little force and unscientific;" an article on the "Copper Mines of Lake Superior," by Professor Winchell, who also discussed the mound builders in connection with the ancient copper mines at Isle Royale, and at two later meetings; Mr. Whelpley described the sand and rock layers, which he presented to the Academy, taken from the artesian well at the Washburn A mill; Warren Upham "spoke of the glacial terminal moraine, which he had spent his time the past summer and fall in examining, and an article on "Red Lake Notes" was transmitted to the Academy and printed in its bulletin from Miss Franc E. Babbitt of Little Falls, together with her sending a box of pottery fragments from this region. In connection with this first mention of a woman in the Academy's proceedings it should have been recorded before that Mrs. F. L. Tinsley, wife of Geo. W. Tinsley, had been elected the first woman member in March, 1876. Mrs. Tinsley had presented the Academy a month before with thirteen mounted bird skins, which she had herself prepared and for

which she was voted thanks "for the valuable specimens presented, prepared, as they were, with artistic skill."

The year 1881 opened with a paper from Mr. Charles Hallock of Hallock, Minn., former editor of "Forest and Stream," on "The Fauna of Northern Minnesota," read by A. B. Jackson and published in the Bulletin. "Mr. T. S. Roberts read an interesting paper upon "The Orchids of Minnesota," speaking first of the peculiarities of the family in general and the various curious adaptations for cross fertilization, the writer directed his attention to the orchids native to the state, of which thirty-two species have been identified. Taking them up in the order of Gray's Botany, each of these was briefly described, with additional notes upon peculiarities, habits, etc" (From the record of the secretary, C. L. Herrick, as the paper was unfortunately not published.) "President Winchell read a paper entitled "Where did Carver Winter in 1766?" Carver's account was shown to be vague and in some respects unreliable. He was in search of the 'Northwest Passage to Asia.' He says he ascended the 'Minesotay' 200 miles, which is an evident exaggeration. Evidence seems to point to the mouth of the Cottonwood river as the actual site of this disputed locality. The paper elicited questions and remarks. Mr. Upham, in response to question, said that he found several evidences of two glacial epochs in the portions of the state which he had examined: First, vegetable remains in situ between layers of boulder clay, also fresh-water shells under the same circumstances; second, terminal moraines in succession. He also spoke of the evidence that there had been more than two such epochs. The universal prevalence of glaciation indicates the astronomical origin of glacial epochs. In response to a question from Mr. Gale, Professor Winchell restated briefly the method by which he had estimated the time since the last Glacial epoch by the data afforded by the recession of the Falls of St. Anthony." (All from March, 1881.)

Mr. Chas. Hallock then gave a personal lecture upon "Fish and Fishing," illustrating his remarks by exhibiting the various paraphernalia of the sport. On motion of Professor Hall the Academy "requested Professor Weitbrecht of St. Paul, Professor Gray of St. Cloud, Professor Boutelle of Winona and Dr. C. N. Hewitt of Red Wing to collect data in reference to the recent and earlier floods of the Mississippi and Minnesota rivers and other waters of the state, in order to made a permanent record of the floods which periodically devastate the state." (July, 1881.) The last meeting for 1881 was held in the new room to which the Academy had moved, back again in the Wensinger Block, 100 Central avenue, where the rent was $100 per year, and insurance for $500 was placed on the collections.

The year 1882 began with Professor Winchell's retiring presidential paper on "The Geology of Minneapolis," the same being a report on the product of the drilling of an artesian well at the Washburn A mill and comparing it with the various geological formations throughout the state." "From the section of Astronomy Judge N. H. Hemiup, Chairman, read an interesting paper on 'The Other Side,' drawing conclusions from the writings of astronomers concerning the actual physical condition of the moon," calling forth much discussion from Professors Winchell and Downey. "Warren Upham read a

very able and elaborate paper on 'The Flora of Minnesota,—Its Trees, Fruits, Flowers and Weeds,' at the March meeting in spite of its adjourning prematurely in consequence of the uncomfortable condition of the hall from cold." "Professor Dodge gave a very full description of some tests of building stones being made in the chemical laboratory" of the University; and "Professor Pearson then read a paper entitled 'Carbonic Acid in the Air.' The paper embodied experiments and results of a series of investigations made by the author a few years ago in and near Boston, Mass." (April meeting.) Both these papers were followed by much discussion on the part of Professor Pike and Dr. W. H. Leonard respectively. The May meeting was memorable for the splendidly able paper by Dr. A. E. Johnson on "Whence came the Differnt Species of Varieties of Man?" published later in the Bulletin and which proved to be the last of the eighteen monumental papers by the "Father of the Academy." His absorbing devotion and study of his fungi, especially his excessive use of his microscope by lamp light by which he nearly lost the sight of one eye, had already begun to break down his health; sciatic rheumatism also began to cripple him. So that from about this time he gave up his practice as a physian and began the long series of invalid years of which he has now almost reached the end. This paper of Dr. Johnson's on the evolution of man was immediately followed by Professor Winchell's fine tribute to Charles Darwin in the shape of resolutions on his death (printed in the Bulletin,) and Judge Hemiup was appointed to prepare a memoir on the life and works of Darwin.

After some discussion at the June meeting "on insects injurious to shade trees, especially the elms of the city," Mr. C. L. Herrick gave the Academy some notes of his stay in Europe during the preceding months, and "Mr. J. Walker called attention to a peculiar infusorium recently observed by him, etc." A special meting was called to extend an invitation, in conjunction with the enlisted aid of the Board of Trade and officials of the city, to the American Association for the Advancement of Science to hold its next yearly meeting in Minneapolis; but this invitation could not be accepted. "Professor Winchell read a paper on 'The Bibliography of the Mineralogy of Minnesota,' with a list of minerals found in the state, with their chief localities." (Published in the Bulletin.) At the November meting "an interesting paper was read by John Walker, chairman of the section of Microscopy, giving a review of the field studied by the section during the past year. The work covered observations on Entomostraca, micro-botany; especially Equisetum spores and outer cells of Utricularia vulgaris, the micro-fungi, fresh-water algae, diatoms, also Infusoria, rizopods and other divisions of the Protozoa, articulates, etc." The last meeting of 1882 found the Academy and its museum again on the West Side, after only one year's second sojourn on the East Side, having rented a room 44x80 on the third floor of Anthony Kelly's Block, 110 Hennepin avenue, at $150 per year. The expense of moving, finishing the room and fitting up of new cases for these quarters was largely met by the activity and generosity of Mr. T. B. Walker, who had been a member of the Academy since February, 1879, had been chairman of the sections of

Geology and Astronomy and had been a trustee, in company with Jas. McGolrick, among others, since January, 1882. There should be recorded with gratitude the fact that this year of 1882 marked the beginning of Dr. A. F. Elliot's eight consecutive years of able leadership as president and of Professor C. W. Hall's fourteen laborious and efficient years as recording secretary. Besides the papers already mentioned as recorded in the meetings for 1880-1882, inclusive, the following papers or abstracts are printed in Vol. III of the Academy's Bulletin covering these three years:

"The State and Higher Education," inaugural address of 1881, by President N. H. Winchell.

"Some Impurities in Drinking Water," by Prof. Geo. Weitbrecht, of the St. Paul Medical College.

"Industrial Educati n," by Prof. W. A. Pike, of the University of Minnesota.

"Influence of Geological Structure on History in the United States," by Prof. A. F. Bechdolt, of the Mankato Normal School.

"Is the Dakota Related to the Indo-European Languages?" by A. W. Williamson, Ad't Professor of Mathematics of Augustana College, Rock Island, Ill.; formerly one of the original charter members of the Academy.

"The Classification of Languages" and "The True Method of Political Economy," both by President W. W. Folwell, of the University of Minnesota.

"The Fixed Stars," by Prof. J. F. Downey, of the University of Minnesota.

"Some Theories of the Origin of Meteorites," by Prof. C. W. Hall.

"The Spectroscope in Astronomy," by Prof. W. W. Payne, of Carlton College.

"The Duty of Scientific Societies to Aid in Practical Sanitary Work," by Dr. C. N. Hewitt, Secretary of the State Board of Health and Professor of Public Health in the University of Minnesota.

"Some Observations of Living Cells," by Prof. S. Calvin, of the State University of Iowa.

"Joseph Priestly," by Prof. James A. Dodge, of the University of Minnesota.

"Natural Sciences in the Public Schools," by Prof. A. F. Bechdolt, of the Mankato Normal School.

"Physiology and Mental Science," by Prof. A. T. Ormond, of the University of Minnesota.

"The Utilization of Sawdust," by Prof. J. A. Dodge.

"Lake Agassiz: A Chapter in Glacial Geology," by Warren Upham.

"The Physical Character of the Sun," by Prof. J. F. Downey.

"A Study of Recent Comets," by Prof. W. W. Payne.

"Some Algae of Minnesota Supposed to be Poisonous" and Descriptions of Iowa Uromyces," both by J. C. Arthur.

"Notes on Some Pieces of Pottery, and Native Alum from White Fish Lake," by C. W. Hall.

"On the Oxidation of Benzine Derivations with Potasium Ferri-Cyanide and Caustic Potash," by W. A. Noyes.

"Meteorologlcai Statistics for Minneapolis from 1865 to 1882," by Wm. Cheney.

There is fortunately no further necessity of continuing this catalog of the papers and discussions of the Academy beyond these first ten years of its existence, for from this time on an outline of the Secretary's record book has been printed as "Proceedings" through the third and fourth volumes of the Bulletin. For this valuable innovation the Academy is indebted to its faithful Secretary and President, Prof. C. W. Hall. As we can therefore trace the personnel and amount and character of the scientific activity of the Academy so easily to the present time through its printed records, there only remains the mention of two important historical events in the Academy's life.

Already in February, 1880, President Hatch had "called the attention of the Academy to a proposition to erect a building which it was proposed to consider at this time, concluding by calling upon Mr. R. E. Grimshaw to present the matter more fully." On Mr. Grimshaw's motion that a committee of five be appointed to consider the whole subject of the erection of a building he was appointed chairman and associated with T. B. Walker, S. C. Gale, A. B. Jackson and N. H. Winchell. Nothing more is said in the records of this plan until November ,1884, when it was resolved through Professor Winchell's motion, "That it is the sense of the Minnesota Academy of Natural Sciences that there should be erected a joint building for the accommodation of the Academy, the Athenaeum and the Art Association, and that this Academy will gladly co-operate with any parties who may inaugurate a general movement to secure this event." This resolution immediately followed mysterious "communication by Judge Hemiup, having reference to a public building to be built for uniting the place of meeting of this Academy and the Athenaeum." Judge Hemiup moved that a committee of three, of whom Dr. Elliot should be one, be appointed to consider the matter in confernce with the trustees of the Athenaeum with a view to solicitation of funds from the public. The matter was further brought forward in a letter read by Judge Hemiup from (name withheld) a friend of the Academy. Dr. Elliot then associated with himself in this committee T. B. Walker and S. C. Gale.

But the "Public Library" plan for the co-ordination of these three public educational functions of literature, art and science was finally executed, and on October 8, 1889, "the Academy met for the first time in its new quarters in the Public Library Building; fifty persons were present." The meetings began there regularly on January 15, 1890, when Dr. Hatch moved that a vote of thanks be extended to the Library Board of the City of Minneapolis "for their prompt and generous action in affording quarters for the Academy and in furnishing cases for the preservation and exhibition of its collections. Mr. Edward Gale, in seconding the motion, spoke in warm and hearty words the appreciation of the institution for the ready and cheerful action of the Library Board towards the Academy. The motion was unanimously carried." But before the Academy could get away from the Kelly Block, Mr. Walker again came to its rescue by contributing $125 toward the $175.81, which Father

McGolrick's peaceful and faithful service as trustee had at last effected as a settlement of the two years' arrears of rent with Mr. Kelly.

The other historical event is the "Menage Scientific Expedition to the Philippine Islands," the inception and history of which is told in the Bulletin "Proceedings" from April 8, 1890, to November, 1894, in the "Preliminary Notes on the Birds and Mammals Collected by the Menage Expedition," which form sixty-four pages of the first issue of "Occasional Papers" of the Academy, and in the "Letters from Dean C. Worcester and Frank S. Bourns, forming the Menage Expedition," in pages 131-172 of Vol. IV. of the Bulletin.

The collections of this expedition have become celebrated. They embrace a beautiful group of stuffed orangs, said to be the best in existence, other Philippine large animals, numerous alcoholic specimens used by the Zoological department of the University of Minnesota, and the finest and largest collection of Philppine bird-skins extant, the last loaned by the Academy to the Honolulu Museum and used by Mr. Bryan in his work on the birds of the Pacific ocean.

The project of this expedition was brought to the attention of the Academy by Mr. H. V. Winchell, a college friend of Messrs. Worcester and Bourns. Mr. Menage was visited by thes three enthusiasts, and on condition that the Academy would house and care for the collection, Mr. Menage contributed ten thousand dollars for expenses.

I cannot close this historical sketch of the Academy of Sciences without recording a couple of practical inferences which have grown out of my leisurely traveling through the Academy's history. The first inference is that the Academy's foundation strength lies in a love for the knowledge of nature right about us, especially of our own state. This love of nature for her own sake, stimulating vigorous physicians, business men and teachers to use their own senses and hungering intelligence to know about the plants, birds, fish, waters, woods, prairies, rocks, bones and pottery,—all this to better understand our own individual relations to the world of nature and man right about us,—such was the strong character of the founders of the Academy thirty-three years ago, and such intellectual interests have made the honorable and useful record of the Academy's first generation of existence. When the Academy has become weakened or desiccated, the cause is evident in the loss of this love of nature and the introduction of the spirit of scientific professionalism. For there is a professionalism of science as well as of bodily exercise. When a student of nature becomes so morbidly developed that his main interest is in displaying his accomplishment or prowess, in collecting an ingenious armor of apparatus for his specialized kind of scientific warfare, and then takes his chief scientific exercise in beating his competitors for good salaried positions,—such a scientific athlete crushes out the modest love of nature—not but that microscopic specialists must exist in the machinery of a true university, or but that much genuine amateur disinterested love of scientific exercise is scattered here and there among the professional positions; and the Academy ought to be deeply grateful for the constancy and efficiency of such well-tried experience as it has had the good fortune to gain. But its second generation of life, judged from its first, must

find its main nourishment in the amateur spirit of voluntary intellectual exercise for one's own stronger scientific manhood.

The second inference is as to the most efficient methods of exercising this love of nature. First by each member's bringing into the monthly meetings the finds in nature which have given him personally the greatest satisfaction. Then by exchanging these nature-discoveries the members were mutually educated in the highest way, —better than any cut and dried formal course of study could do. The bringing in of real specimens for the museum, describing them informally and untechnically, was the best stimulus for each member's learning more in his special field of nature. The wider perspectives of the application of all these bits of knowledge to ourselves, as preeminently gathered up in the great world-law of evolution, has often been presented most ably in the presidential addresses. And the most that any guiding officer could do was in aiding or arranging the meetings for discussions and papers; his most strenuous official fidelity is unavailing without a homogeneous body of real lovers of and workers in nature. If the contribution made a fairly complete chapter or even paragraph of knowledge they printed their papers themselves to exchange with similar all over the world. Here again they happily avoided a professionalism which, often under the glamor of artificial light or obscurity, too often extracts money from spectators to pay for publishing their personal victories. The range of the Academy's collected studies thus naturally confined itself to the knowledge of the nature of our own community and state; similar scientific societies in other cities and states making their local studies and exchanging with Minneapolis and Minnesota. The more abstract, technical, or ultra-scientific papers found little expression in the four volumes of the Academy's Bulletins; such articles should go to the few highly specialized scientific journals.

Then, besides being a mutual knowledge-exchange, the Academy made itself helpful to a larger circle through the educational means of its public museum and public lectures. Both these public functions have done much for the intellectual culture of our city. They require more financial support than the publishing function; but, when any necessary or reasonable plans for museum growth or popular scientific lectures were made, there has been a timely and generous support from public-spirited men of intellectual and business force of character. Where there has been scientific ideals and determination the money has never failed. Thousands of children and adults have gotten educational culture from the Academy's collections of the works of nature and of nature's children, or from the Academy's public lectures on astronomy or physiology. Along with the rich opportunities for literary and art culture which our city generously offers to its children and citizens there is also the indispensable need for the complementary side of human culture in knowing nature about us at first hand. And this function the Academy's museum and public lectures can fulfill as none of our other educational means in schools and colleges try or can hope to do.

Thus it is profoundly to be hoped that the spirit of loving to know about nature for her own sake and the executive ability for

pursuing this knowledge for its own culture-value to themselves and to the community may be sacredly honored, preserved and extended in the life of the Academy.

LIST OF ACCESSIONS TO THE LIBRARY BY EXCHANGE FOR THE YEARS 1905-1909.

Prepared by O. W. Oestlund, Corresponding Secretary.

Aarau, Switzerland.—Aargauischen naturforschenden Gesellschaft zu Aarau. Mitteilungen: X; XI.

Adelaide, South Australia.—Royal Geographical Society of Australasia, Proceedings: VIII.

Agram, Hungary.—Jugoslavenska Akademija.
Ljetopis: XIX-XXIII. Rad. 158-161, 163, 165, 167, 169, 171, 173, 175, 177.

Albany, N. Y.—State Educational Department: Annual Report, I, II.
State Library: Bulletin, Nos. 86, 87, 91, 93, 97, 99, 100.
State Museum: Annual Report, 56, 57; Bulletin, 77-87, 89, 91, 93-97, 99, 100, 102.
University of N. Y. Annual Report, 1905.

Altenburg, Germany.—Naturforschende Gesellschaft des Osterlande.
Mitteilungen: XI, XII, XIII.

Amiens, France.—Société Linnéenne du Nord de la France.
Bulletin: XV-XVIII; Memoires, XI.

Ann Arbor, Mich.—Academy of Science. Reports: I-VI, IX, X.
University of Michigan. Bulletins, 1905-1909.

Austin, Texas.—Texas Academy of Science. Transactions: IX, X.

Baltimore, Md.—Johns Hopkins University. Circulars: 1905-1909.

Baltimore, Md.—Peabody Institute. Annual Reports: 38, 41.

Bamberg, Germany.—Naturforschende Gesellschaft in Bamberg.
Bericht: XIX, XX.

Barcelona, Spain.—Real Academia de Ciencias y Artes de Barcelona.
Boletin: II: 6-11. Memorias: V, 2-27; VI, 1-33; VII, 1-17; VIII, 1-6. Nomena: 1904-1908.

Basel, Switzerland.—Naturforschende Gesellschaft in Basel.
Verhandlungen: XV, 3; XVI-XIX; XX, 1.

Belfast, Ireland.—Natural History and Philosophical Society.
Report and Proceedings: 1903-1906.

Bergen, Norway.—Bergens Museum. Aarsberetning: 1904-1906. Aarsbog: 1904: 2, 3. 1905; 1906; 1907: 1, 2. Meeresfauna von Bergen; I-III.

Berkeley, Cal.—University of California.
Publication: I: 8; II: 1-2. Chronicle: X, 3, 4.

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Naturae novitates: 1904, 19-24; 1905-1908; 1909, 1-6.

Beiers, France.—Société d' Etude des Sciences Naturelles de Beziers.
Bulletin: XXVI-XXIX.

Bogota, Colombia.—Ministerio de Obras Publicas.
Revista: I, 8-12; II; III; IV, 1-9.